

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

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REC'D 06 MAY 2005

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION See paragraph 2 below

International application No.
PCT/US2005/000487

International filing date (day/month/year)
07.01.2005

Priority date (day/month/year)
09.01.2004

International Patent Classification (IPC) or both national classification and IPC
C10M159/12, C10M173/00

Applicant
THE LUBRIZOL CORPORATION

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the International application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1b/s(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

- For further options, see Form PCT/ISA/220.
- For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. **type of material:**
 - a sequence listing
 - table(s) related to the sequence listing
 - b. **format of material:**
 - in written format
 - in computer readable form
 - c. **time of filing/furnishing:**
 - contained in the international application as filed.
 - filed together with the international application in computer readable form.
 - furnished subsequently to this Authority for the purposes of search.
3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or
industrial applicability; citations and explanations supporting such statement**

1. Statement

| | | |
|-------------------------------|-------------|--------------|
| Novelty (N) | Yes: Claims | 10-12,14-18 |
| | No: Claims | 1-9,13,19,20 |
| Inventive step (IS) | Yes: Claims | |
| | No: Claims | 1-20 |
| Industrial applicability (IA) | Yes: Claims | 1-20 |
| | No: Claims | |

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

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Re Item V.

1. Reference is made to the following documents:

- D1: JP 61 060793 A (DATABASE WPI, AN 1986-121923; XP002326424)
- D2: JP 04 073477 B (DATABASE WPI, AN 1986-079176; XP002326425)
- D3: US 2 188 887
- D4: CA 1 069 410
- D5: US 3 293 201
- D6: US 5 030 388
- D7: DD 57 961

The passages cited in the International Search Report are referred to.

2. INDEPENDENT CLAIMS 1 and 7

2.1 Claim 1 is directed to an emulsifier which is the reaction product of maleic anhydride and triglyceride oil **from plant or land animal** (a) which is further reacted with a list of possible reactants, like metals, water, amines, polyols, alkanolamines, polyamines, polyalkyleneoxide or mixtures (b).

Claim 7 is directed to a "metalworking fluid" composition comprising the reaction product (a), **optionally** reacted with (b) and water and **optionally** and oil (selected from many possible). Claim 7 thus essentially only requires the presence of the reaction product (a) and water.

2.2 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1 and 7 is not new in the sense of Article 33(2) PCT.

Document D3 discloses maleinized fatty oils that are reacted with alkali metal hydroxide or alcohols as dispersing agents (emulsifiers) for oils and fatty materials. Many uses are indicated, *inter alia*, in lubricants and cutting fluids. D3 not only destroys the of the independent claims 1 and 7, it also discloses the subject-matter of

the dependent claims 2, 8, 9, 13 and 19.

Document D4 discloses an emulsifier for paper sizing which is a maleinized triglyceride modified by alkylamine or ammonium hydroxide. The compound is said to lead to improved emulsification requiring less agitation and lower amount of the emulsifier. The subject-matter of the independent claims 1 and 7 is not novel over D4, nor is that of the dependent claims 2, 5, 8 and 9 (see also claim 1 of D4 for the amount of the emulsifier).

D5 discloses emulsions of curable resinous compositions - the emulsifier is a maleinized linseed oil further reacted with ammonium hydroxide or amine (many alkanolamines are expressly mentioned, among them triethanolamine). D5 is not only novelty destroying to the subject-matter of the independent claims 1 and 7, it also anticipates the dependent claims 2, 3, 5 and 6.

D6 discloses water dispersible, self-emulsifiable reaction product of triglyceride/maleic acid addition product and capped polyalkylene oxide or jeffamine (which is a polyalkoxylated amine) and their use as sizing agent. D6 not only destroys the of the independent claims 1 and 7, it also discloses the subject-matter of the dependent claims 2 and 20.

D7 discloses the reaction product between triglyceride (wood oil) and MA reacted with polyamines and their use in coating industry. Since D7 does not disclose the presence of water, it only destroys the novelty of claim 1 and that of the dependent claims 2 and 4.

- 2.4 To conclude, the subject-matter of the claims 1-9, 13, 19 and 20 is not novel over the cited prior art.
3. The subject-matter of the claims 10-12 and 14-18 is not disclosed in the above cited documents and has thus to be considered novel.

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of these claims does not involve an inventive step in the sense of

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Article 33(3) PCT.

The further documents D1 and D2, (D2 has been referred to in the description), are closely related to the application that has been indicated in the present application (metalworking fluids).

As has been indicated by the applicant in case of D2, these documents relate to the use of maleinized **fish oil** (D2) or its esterification products with monohydric and polyhydric alcohols (D1) as self-emulsifying additives in aqueous and non-aqueous MWF in combination with oils and implicitly with other usual additives.

It should be noted that D3 also relates to lubricant and cutting fluids.

The subject-matter of the independent claim 1 and 7 differs from D1 and D2, which are considered to represent the closest prior art only in that the maleinized oil is derived from a **plant or a land animal**.

The application itself formulates the problem as e.g. "It would be desirable to have functionalized natural oils for use in metalworking that are self-emulsifying" (paragraph 5) or states that fish oil "have higher odour and tendency to degrade" (paragraph 23).

The document D3, teaches many different oils, like fish oil, linseed oil, olive oil etc. Also D6 which is directed to a self-emulsifiable triglyceride/MA product and its derivatives refers to both plant and marine oils. This shows that there is no doubt that the properties of the emulsifier or the additive are not determined by the origin of the oil; therefore it is obvious to use alternative oils without thereby achieving any unexpected advantages. The skilled person can foresee the advantages with odour and stability, if there should be any.

The addition of usual additives according to claims 10 to 12 cannot help to establish an inventive step.

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The subject-matter of the claims that refer to alternative amines, in particular alkanolamines, according to claims 14 to 17, does not in combination with features of any claims they depend on, help to establish an inventive step.

The examples of the application show emulsions with only the TEA, MEA or KOH modified reaction product, without any further features being present. D5 seems to establish that such compounds have emulsifying properties. The use of amine-modified reaction product is thus obvious. It cannot be argued that it was not obvious to use the emulsifier that has been described for other uses, since it is the very function of the emulsifier that is the only important feature in this case.

There is further no data or no example of the subject-matter of claim 18, which is thus only a speculative embodiment. No advantage can be seen in using two emulsifiers even if this has nowhere been disclosed, there is no problem that is solved.

Conclusively, it can be said that the application does not contain any inventive subject-matter.

Re Item VII.

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1 and D3 to D7 is not mentioned in the description, nor are these documents identified therein.